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Modules close to SSP- and SIP-modules

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Abstract

© 2017, Pleiades Publishing, Ltd.In this paper, we investigate some properties of SIP, SSP and CS-Rickart modules. We give equivalent conditions for SIP and SSP modules; establish connections between the class of semisimple artinian rings and the class of SIP rings. It shows that R is a semisimple artinian ring if and only if RR is SIP and every right R-module has a SIP-cover. We also prove that R is a semiregular ring and J(R) = Z(RR) if only if every finitely generated projective module is a CSRickart module which is also a C2 module.

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Keywords

CS-Rickarts, SIP-CS, SIP-module, SSP-module

References

[1] A. N. Abyzov and A. A. Tuganbaev, “Modules in which sums or intersections of two direct summands are direct summands,” Fundam. Prikl.Mat. 19, 3–11 (2014).

[2] A. N. Abyzov and T. H. N. Nhan, “CS-Rickart modules,” Lobachevskii J. Math. 35, 317–326 (2014).

[3] M. Alkan and A. Harmanci, “On summand sum and summand intersection property of modules,” Turk. J. Math. 26, 131–147 (2002).

[4] I. Amin, Y. Ibrahim, and M. F. Yousif, “D3-modules,” Commun. Algebra 42 (2), 578–592 (2014).

[5] I. Amin, Y. Ibrahim, and M. F. Yousif, “C3-modules,” Algebra Colloq. 22, 655–670 (2015).

[6] F. W. Anderson and K. R. Fuller, Rings and Categories of Modules (Springer, New York, 1974).

[7] V. Camillo, Y. Ibrahim, M. Yousif, and Y. Zhou, “Simple-direct-injective modules,” J. Algebra 420, 39–53 (2014).

[8] J. Clark, C. Lomp, N. Vanaja, and R. Wisbauer, Lifting Modules. Supplements and Projectivity in Module Theory, Frontiers inMathematics (Birkhäuser, Basel, Boston, Berlin, 2006).

[9] N. V. Dung, D. V. Huynh, P. F. Smith, and R. Wisbauer, Extending Modules, Vol. 313 of Pitman Research Notes in Mathematics (Longman Sci. and Tech., Harlow, New York, 1994).

[10] E. E. Enochs, “Injective and flat covers, envelopes and resolvents,” Israel J. Math. 39, 189–209 (1981).

[11] C. Faith, Algebra II. Ring Theory (Springer, New York, 1967).

[12] J. L. Garcia, “Properties of direct summands of modules,” Commun. Algebra 17, 73–92 (1989).

[13] A. Hamdouni, A. Harmanci, and A. Ç. Özcan, “Characterization of modules and rings by the summand intersection property and the summand sum property,” JP J. Algebra, Number Theory Appl. 5, 469–490 (2005).

[14] J. Hausen, “Modules with the summand intersection property,” Commun. Algebra 17, 135–148 (1989).

[15] Y. Ibrahim, M. Tamer Kossan, T. C. Quynh, and M. Yousif, “Simple-direct-projective modules,” Comm. Algebra 44, 5163–5178 (2016).

[16] G. Lee, S. T. Rizvi, and C. S. Roman, “Rickart modules,” Commun. Algebra 38, 4005–4027 (2010).

[17] G. Lee, S. T. Rizvi, and C. S. Roman, “Direct sums of Rickart modules,” J. Algebra 353, 62–78 (2012).

[18] S. H. Mohammed and B. J. Müller, Continous and Discrete Modules, Vol. 147 of London Math. Soc. Lecture Notes Series (Cambridge Univ. Press, Cambridge, 1990).

[19] W. K. Nicholson, “Semiregular modules and rings,” Canad. J. Math. 28, 1105–1120 (1976).

[20] W. K. Nicholson and M. F. Yousif, Quasi-Frobenius Rings (Cambridge Univ. Press, Cambridge, 2003).

[21] T. C. Quynh, M. T. Kosan, and L. V. Thuyet, “On (semi)regular morphisms,” Commun. Algebra 41, 2933–2947 (2013).

[22] G. V. Wilson, “Modules with the summand intersection property,” Commun. Algebra 14, 21–38 (1986).

[23] R. Wisbauer, Foundations of Module and Ring Theory (Gordon and Breach, London, 1991).